Department of Energy
Richland Operations Office
P.O. Box 550
Richland, Washington 99352

040457

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Mr. Steve M. Alexander
Perimeter Areas Section Manager
Nuclear Waste Program
State of Washington
Department of Ecology
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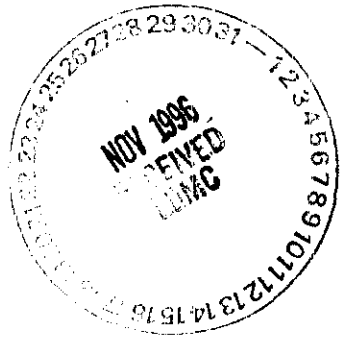
Kennewick, Washington 99336-6018



Mr. Douglas R. Sherwood
Hanford Project Manager
U.S. Environmental Protection Agency
712 Swift Boulevard, Suite 5
Richland, Washington 99352-0539

Dear Messrs. Alexander and Sherwood:

TRANSMITTAL OF THE ENGINEERING EVALUATION/COST ANALYSIS (EE/CA) FOR THE 233-S PLUTONIUM CONCENTRATION FACILITY

The purpose of this correspondence is to formally transmit DOE/RL-96-93, EE/CA for the 233-S Plutonium Concentration Facility (Attachment 1), for the 233-S Decommissioning project. The project was selected to demonstrate the integration of nuclear and worker safety requirements in a removal action governed by the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). Staff from the U.S. Department of Energy (DOE), Office of Environment, Safety and Health; DOE, Office of Environmental Management; the U.S. Environmental Protection Agency (EPA); the State of Washington Department of Ecology; and Bechtel Hanford, Inc. (BHI) are working as a team to implement the EPA and DOE joint policy to perform decommissioning activities under CERCLA.

The 233-S EE/CA identifies risks and hazards associated with the facility, alternatives for addressing the risks and mitigating the hazards, and standards and requirements for conducting each alternative; evaluates the comparative risks and merits of the alternatives; and recommends a preferred alternative based on such comparison. Also attached to this transmittal letter is a requirements analysis of DOE Environmental, Safety, and Health (ES&H) Orders (Attachment 2). The analysis identifies requirements that are potentially pertinent standards for response actions. Also identified in the analysis are Order requirements that while not appropriate for identification in the 233-S EE/CA, are appropriate as programmatic requirements. Order requirements that are identified for the 233-S Decommissioning project are included in Section 5.2.7 of the EE/CA.

In order to streamline the review process the following roadmap has been provided to identify sections in the EE/CA, or the future removal action design report, where DOE Order requirements are met.

233-S ROADMAP TO DOE ES&H ORDERS 040457

The following DOE ES&H Orders have been determined to be programmatic in nature; they are met by implementation of the appropriate program requirements as identified in the Baseline Evaluation of DOE Orders, and are not identified in the 233-S applicable or relevant and appropriate requirements/to be considered analysis.

1300.2A	DOE Technical Standards Program
1360.2B	Unclassified Computer Security Program
4700.1	Project Management System
5000.3B	Occurrence Reporting and Processing of Operations Information
5400.1	General Environmental Protection
5480.4	Environmental Protection, Safety & Health Protection Standards
5480.8A	Contractor Occupational Medical Program
5480.9A	Construction Safety and Health Program
5480.10	Contractor Industrial Hygiene Program
5480.11	Radiation Protection for Occupational Workers
5480.19	Conduct of Operations Requirements for DOE Facilities
5480.26	Trending and Analysis of Operations Information Using Performance Indicators
5483.1A	OSHA for DOE Contractors at GOCO Facilities
5484.1	Environmental Safety and Health Protection Information Reporting Requirements
5500.1B	Emergency Management System
5500.2B	Emergency Categories, Classes, and Notifications and Reporting Requirements
5500.3A	Planning and Preparedness for Operational Emergencies
5500.10	Emergency Readiness Assurance Program
5632.1C	Protection Program Operations
5700.6C	Quality Assurance

The following Orders have been individually evaluated with regard to the 233-S Decommissioning project. Substantive requirements determined to be relevant and appropriate to the 233-S Decommissioning project, identified in Section 5.2.7 of the EE/CA, are addressed as specified below.

4330.4B Maintenance Management Program

DOE Order 4330.4B requirements are addressed as follows: the requirements will be implemented by identification of appropriate commitments in the remedial design report (RDR) documents relating to the specific response action selected in the Action Memorandum. A roadmap to the sections in the RDR that address these requirements will be provided in conjunction with the RDR documents.

5400.5 Radiation Protection of the Public and the Environment

DOE Order 5400.5 requirements are addressed as follows: Section 3 of the Preliminary Hazard Assessment (attached to the EE/CA) evaluates the potential for exposure of the public to radioactive releases from the various response

action alternatives; Section 5.2.2 identifies the applicable air emission standards for protection of the public; the RDR documents will specify the control measures that will be implemented to assure that the potential exposures are controlled and that the identified standards are met by the response action selected in the Action Memorandum; the standards in the Order relating to liquid waste discharges are not applicable to any of the identified potential response actions; the standards in the Order relating to release of real property are outside the scope of this response action because it does not address final remediation and release of the site; the standards in the Order relating to release of contaminated material, equipment or personal property would be pertinent to any potentially clean material removed from the facility under the demolition alternative; if that alternative is selected in the Action Memorandum, the RDR documents will specify how these standards will be met.

5440.1E National Environmental Policy Act Compliance Program

The requirements of DOE Order 5440.1E are met as follows: National Environmental Policy Act (NEPA) values have been addressed in Sections 4 and 5 of the EE/CA; a 45-day public comment period will be allowed on the EE/CA; if the Action Memorandum contains any mitigation commitments, the RDR documents will include a mitigation action plan.

5480.3 Safety Requirements for the Packaging and Transportation of Hazardous Materials, Hazardous Substances and Hazardous Waste

The requirements of DOE Order 5480.3 are met as follows: the RDR documents will identify commitments for project-specific waste shipment requirements, including operating procedures, notification and tracking processes and any specific waste packaging and transportation requirements pertaining to the waste to be generated by the response action selected in the Action Memorandum.

5480.7A Fire Hazards Analysis

The requirements of DOE Order 5480.7A are met as follows: a preliminary assessment of fire hazards is described in Section 3 of the Preliminary Hazard Assessment (attached to the EE/CA); a final evaluation of the potential fire hazards relating to the selected response action and specific measures necessary to minimize the potential for fire hazards during the response action will be identified in the RDR documents.

5480.20A Personnel Selection, Qualification and Training

The requirements of DOE Order 5480.20A are met as follows: project-specific qualifications and training requirements will be identified in the RDR documents based on an analysis of the jobs to be performed and the qualifications and training necessary to safely and effectively perform the jobs necessary to implement the response action selected in the Action Memorandum.

5480.21 Unreviewed Safety Questions

The requirements of DOE Order 5480.21 are met as follows: the RDR documents will identify those authorization basis components that will be subject to the Environmental Restoration Program unreviewed safety questions review process for the response action selected in the Action Memorandum.

5480.22 Technical Safety Requirements

The requirements of DOE Order 5480.22 are met as follows: a preliminary evaluation of the conditions that may require technical safety requirements is discussed in Sections 2.3, 4, and 5.5 of the EE/CA and Section 3 of the Preliminary Hazard Assessment (attached to the EE/CA); a project-specific Health and Safety Plan will be developed as part of the RDR documents; and additional specific requirements or controls that may be deemed necessary to provide sufficient protection to workers or the public for the response action selected in the Action Memorandum will be defined in the RDR documents.

5480.23 Nuclear Safety Analysis Reports

The requirements of DOE Order 5480.23 are met as follows: the applicability of the requirements has been identified in Section 5.2.7 of the EE/CA; hazards are identified in Sections 2 and 4 of the EE/CA, and Section 3 of the Preliminary Hazard Assessment (attached to the EE/CA), including a description of the radioactive materials and chemicals present at the site, an evaluation of the dominant contributors to risk, and potential pathways; actions to mitigate the identified hazards are generally discussed in the description of the decommissioning alternatives (Section 4), and in the evaluation of short term effectiveness (Section 5.5); a final activity-specific evaluation of hazards and accidents, and specific safety commitments to assure that the hazards posed by the response action selected in the Action Memorandum are appropriately mitigated will be defined in the RDR documents.

5480.24 Nuclear Criticality Safety

The requirements of DOE Order 5480.24 are met as follows: a preliminary criticality evaluation is provided in BHI-00891, Criticality Evaluation for the 233-S Decontamination and Decommissioning Project, referenced in the EE/CA; field verification actions necessary to verify the assumption in the analysis, further characterization that may be warranted, and activity-specific commitments to assure that the risk of a criticality incident is acceptably low for the response action selected in the Action Memorandum will be contained in the RDR documents.

5480.28 Natural Phenomena Hazards Mitigation

The requirements of DOE Order 5480.28 are met as follows: an evaluation of any requirements pertinent to the response action selected in the Action memorandum will be provided in the RDR Documents.

5480.31 Start-up and Restart of Nuclear Facilities

The requirements of DOE Order 5480.31 are met as follows: the scope, content and participants for the review of readiness will be defined in the RDR documents.

5820.2A Radioactive Waste Management

The requirements of DOE Order 5820.2A are met as follows: the requirements relating to disposal of low level waste in Environmental Restoration Disposal Facility (ERDF) have been addressed in the ERDF CERCLA documentation; project-specific requirements relating to management of low-level waste or transuranic waste generated by the response action selected in the Action Memorandum will be defined in the waste management plan developed as part of the RDR documents.

6430.1A General Design Criteria

The requirements of DOE Order 5820.2A are met as follows: if demolition is the alternative selected in the Action Memorandum, the RDR documents will address plans to ensure remaining buildings, trees, and environmental resources are protected, and to define: the extent of demolition; abandonment and removal of existing facilities and utilities; the methods for handling and disposal of hazardous wastes; materials to be salvaged; and backfilling of removed materials and cleanup.

Please review attachments 1 and 2 and provide comments by December 12, 1996. This review schedule meets the required 30-day review of primary documents as specified in the Tri-Party Agreement Action Plan. It is the intent of the U.S. Department of Energy, Richland Operations Office to initiate public review no later than January 8, 1997. If you have any questions, please contact me on 376-7121.

Sincerely,

Jeffrey M. Bruggeman, Project Manager
Decontamination and Decommissioning Project

DDP:JMB

Attachments

cc w/o attachs:
J. E. Rugg, BHI
J. J. McGuire, BHI

cc w/attachs:
P. S. Innis, EPA

BASELINE EVALUATION OF DOE ORDERS

FOR IMPLEMENTATION OF ENVIRONMENTAL RESTORATION WORK AT HANFORD UNDER THE DOE INTEGRATED CERCLA PROCESS

Hanford Environmental Restoration (ER) Project work is conducted pursuant to the requirements of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and the Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement). The Tri-Party Agreement is a legally enforceable plan for accomplishing ER work at the Hanford Site, with specific provisions for oversight by the U.S. Environmental Protection Agency (EPA) and the State of Washington Department of Ecology (Ecology). At Hanford, ER Project work includes Decontamination and Decommissioning (D&D) and surveillance and maintenance (S&M) of inactive surplus facilities. In accordance with current DOE Headquarters policy, D&D actions at facilities where hazardous substances are present will be undertaken by the ER Project as removal actions under CERCLA. S&M of inactive facilities is conducted pursuant to documentation developed and adopted under requirements in the Tri-Party Agreement (S&M Plan).

I. PROCESS FOR INTEGRATION OF CERCLA AND DOE ORDER REQUIREMENTS

CERCLA requires that the substantive requirements of all applicable or relevant and appropriate requirements (ARARs) legally promulgated standards be identified, analyzed and met for CERCLA response actions. (42 U.S.C. Section 9621) DOE Orders are not promulgated standards, and therefore they are not ARARs under CERCLA. However, in accordance with CERCLA guidance, the substantive provisions shall be identified and met for those activities for which they are relevant and appropriate and necessary to provide a sufficient degree of protectiveness. ("CERCLA Compliance With Other Laws Manual, Overview of ARARs", OSWER Directive 9234.2-03/FS, December 1989)

By incorporating the substance of these Orders into the CERCLA documentation process, those provisions become enforceable by DOE, EPA, Ecology, and the public under the terms of CERCLA and the Tri-Party Agreement. The approval authorities for CERCLA decision documents are the DOE Richland Operations Office (RL) Manager, EPA, and Ecology.

This document provides an initial evaluation of the requirements of the primary DOE Environmental, Safety, and Health (ES&H) Orders, to determine which of those Orders contain requirements that may be relevant and appropriate for Hanford ER Project work. This document identifies the Orders which provide substantial technical standards or requirements that are relevant and appropriate to specific response actions. Under the Integrated CERCLA Process, such Orders shall be identified as "To Be Considered" in the ARARs analysis contained in the Remedial Investigation/Feasibility Study (RI/FS) or Environmental Evaluation/Cost Analysis (EE/CA) for the response action. The Orders that provide only general guidance or programmatic provisions shall not be individually identified in ARARs analyses, but are met as described in this document.

II. SUMMARY OF ANALYSIS OF ORDERS

The Hanford Environmental Initiative Pilot Project reviewed 62 of the primary DOE ES&H Orders (these have been identified as the Orders of interest to the Defense Nuclear Facilities Safety Board). Based on this analysis, these Orders have been categorized as follows:

A) Not relevant or appropriate for Hanford ER Project work,

B) Canceled,

C) No substantive requirements relevant or appropriate to ER Project work by Bechtel Hanford, Inc. (BHI), or

D) Potentially relevant and appropriate to Hanford ER Project work.

The Orders identified in the fourth category have been subdivided into two groups: those that are relevant and appropriate to the ER Project at a general level, and those that are relevant and appropriate to specific response actions. Only the Orders that provide technical standards or requirements that are relevant and appropriate to specific response actions will be identified in requirements analyses in EE/CAs or RI/FSs. This document provides a general description of how the applicable programmatic Orders are met for ER Project work.

A. Not Relevant or Appropriate For Hanford ER Project Work

The following DOE Orders have been reviewed, and determined to be neither applicable nor relevant or appropriate for Hanford ER Project work, because they address only actions or facilities that do not exist within the Hanford ER Project, such as weapons systems, accelerators, or design and operation of class A Reactors.

5480.6	Safety of DOE-Owned Reactors
5480.18B	Accreditation of Performance Based Training for Category A Reactors and Nuclear Facilities
5480.25	Safety of Accelerator Facilities
5480.30	Nuclear Reactor Safety Design Criteria
5530.1A	Accident Response Group
5530.2	Nuclear Emergency Search Team
5530.3	Radiological Assistance Program
5530.4	Aerial Measuring System
5600.1	Management of DOE Weapon Program and Weapon Complex
5610.10	Nuclear Explosive and Weapon Safety Program
5610.11	Nuclear Explosive Safety
5610.12	Packaging of Offsite Transportation of Nuclear Components, and Special Assemblies with the Nuclear Explosive and Weapon Safety Program
5610.13	Joint DOE/DOD Nuclear Weapon System Safety, Security, and Control Activities

B. Canceled Orders

The following DOE Orders, although listed in the BHI contract for compliance, as applicable, in the performance of ER Project work, have been canceled and not replaced, and therefore will not be reviewed for potential relevance and appropriateness.

5400.3	Hazardous and Radioactive Mixed Waste Program
5480.5	Safety of Nuclear Facilities
5481.1B	Safety Analysis and Review System
5632.11	Physical Protection of Unclassified Irradiated Reactor Fuel in Transit

C. No Substantive Requirements Relevant to ER Project Work by BHI

The following DOE Orders have been reviewed, and determined not to contain any substantive requirements that are relevant or appropriate for performance by BHI of ER Project work under CERCLA at Hanford, because they relate only to internal DOE programs, and do not contain requirements applicable to the performance of work by BHI.

1540.3A	Base Technology for Radioactive Material Transportation Systems
5400.2A	Environmental Compliance Issue Coordination
5400.4	CERCLA Requirements
5480.1B	Environment, Safety, and Health Program for DOE Operations
5480.15	Department of Energy Laboratory Accreditation Program for Personnel Dosimetry
5480.17	Site Safety Representative
5480.29	Employee Concerns Management System
5482.1B	ES&H & QA Appraisal and Surveillance Program
5500.4A	Public Affairs Policy and Planning Requirements for Emergencies
5500.7B	Emergency Operating Records Protection Program

D. Substantive Requirements Evaluated Individually

The following Orders have substantive elements that may be relevant and appropriate for Hanford ER Project work. These Orders are individually reviewed and evaluated in the following sections. Many of the provisions of these orders are already met by the CERCLA analysis process, or by mean of other ARARs. Unique elements shall be incorporated into CERCLA documentation, in accordance with CERCLA guidance and Tri-Party Agreement processes.

D. 1. Programmatic Orders

The following Orders are programmatic in nature, or otherwise do not contain standards or requirements pertaining to individual response actions. These Orders will not be separately identified in project-specific ARARs analyses, however, compliance with applicable provisions will be continued under appropriate Environmental Restoration Contractor (ERC) programs.

1300.2A	DOE Technical Standards Program
1360.2B	Unclassified Computer Security Program
4700.1	Project Management System
5000.3B	Occurrence Reporting and Processing of Operations Information
5400.1	General Environmental Protection
5480.4	Environmental Protection, Safety & Health Protection Standards
5480.8A	Contractor Occupational Medical Program
5480.9A	Construction Safety and Health Program
5480.10	Contractor Industrial Hygiene Program
5480.11	Radiation Protection for Occupational Workers
5480.19	Conduct of Operations Requirements for DOE Facilities
5480.26	Trending and Analysis of Operations Information Using Performance Indicators
5483.1A	OSHA for DOE Contractors at GOCO Facilities
5484.1	Environmental Safety and Health Protection Information Reporting Requirements
5500.1B	Emergency Management System
5500.2B	Emergency Categories, Classes, and Notifications and Reporting Requirements
5500.3A	Planning and Preparedness for Operational Emergencies
5500.10	Emergency Readiness Assurance Program
5632.1C	Protection Program Operations
5700.6C	Quality Assurance

D.2. Potentially Relevant And Appropriate To Response Actions

The requirements from the following Orders that are relevant and appropriate for proposed response actions shall be identified as "To Be Considered" requirements in the ARARs analysis for the specific response action:

1540.2	Hazardous Material Packaging for Transport
4330.4B	Maintenance Management Program
5400.5	Radiation Protection of the Public and the Environment
5440.1E	National Environmental Policy Act Compliance Program
5480.3	Safety Requirements for the Packaging and Transportation of Hazardous Materials, Hazardous Substances and Hazardous Waste
5480.7A	Fire Hazards Analysis
5480.20A	Personnel Selection, Qualification and Training
5480.21	Unreviewed Safety Questions
5480.22	Technical Safety Requirements
5480.23	Nuclear Safety Analysis Reports
5480.24	Nuclear Criticality Safety
5480.28	Natural Phenomena Hazards Mitigation
5480.31	Start-up and Restart of Nuclear Facilities
5820.2A	Radioactive Waste Management
6430.1A	General Design Criteria

III. ORDERS NOT TO BE IDENTIFIED IN ARARS ANALYSES

The following sections provide individual analyses of the DOE Orders that have been determined to contain requirements that are relevant and appropriate to Hanford ER Project work, but that do not provide technical standards or requirements appropriate for identification in individual response action ARARs analyses. These Orders shall not be identified in project-specific ARARs analyses. The requirements of these Orders are met as described in the sections that discuss each Order:

III.A. DOE ORDER 1300.2A, DOE TECHNICAL STANDARDS PROGRAM

DOE Order 1300.2A provides for DOE-wide coordination of technical standards and development of DOE standards as necessary. The Order provides for the use of non-governmental technical standards when such standards are adequate and appropriate for the intended application, and are no less stringent than a DOE standard. The Order is met by identification of technical standards appropriate for use in response actions in the EE/CA ARARs analysis, and/or the remedial design report (RDR) documents, and incorporation of those standards into the design and implementation of the response action.

III.B. DOE ORDER 1360.2B - UNCLASSIFIED COMPUTER SECURITY PROGRAM

DOE Order 1360.2B requires establishment of a security program for computer systems at DOE facilities. The Order is met by implementation of the ER Project computer protection program.

III.C. DOE ORDER 4700.1 - PROJECT MANAGEMENT SYSTEM

This Order requires that DOE projects be subject to the application of sound management principles to provide a disciplined, systematic, and coordinated approach to project management resulting in efficient planning, organization, coordination, budgeting, management, review and control. This Order is met by implementation of the ER Project, project management system.

III.D. DOE ORDER 5000.3B - OCCURRENCE REPORTING AND PROCESSING OF OPERATIONS INFORMATION

DOE Order 5000.3B, Occurrence Reporting, [and its successor Order, 232] requires actions 1) to evaluate the potential severity of abnormal event and conditions, 2) to inform DOE of events which could affect the health and safety of the public, seriously impact the intended purpose of DOE facilities, have a noticeable adverse effect on the environment, endanger the health and safety of workers, or adversely affect national security or the security interests of the DOE; and 3) to ensure that appropriate corrective actions are effectively taken. This Order is met by implementation of the ER Project occurrence reporting process by which the potential severity of abnormal events and conditions is evaluated, DOE is informed of potentially serious events, and appropriate corrective actions are effectively taken to address any such events.

III.E. DOE ORDER 5400.1 - GENERAL ENVIRONMENTAL PROTECTION PROGRAM

DOE Order 5400.1 generally requires compliance with environmental laws and directives. It also requires DOE to establish program plans for accomplishing environmental compliance, provides for sitewide monitoring to be conducted at DOE facilities, and requires an annual site environmental report from DOE facilities that conduct significant environmental protection programs. The Order is met as follows: compliance with environmental laws and directives is accomplished for ER work by identification and analysis of standards and requirements in the ARARs section in the EE/CA and by implementation of those standards and requirements through the RDR documents.

III.F. DOE ORDER 5480.4 - ENVIRONMENTAL PROTECTION, SAFETY, AND HEALTH PROTECTION STANDARDS

DOE Order 5480.4 includes a list of standards relating to safety and protection of health and the environment, and provides a process for review of requests for exemptions from those requirements. The standards identified in the Order are those which are incorporated into the CERCLA process by means of the ARARs analysis in the EE/CA or RI/FS, and the development of the design basis in the RDR documents. The Order is met as follows: review and approval of the set of standards for a specific response action is accomplished by implementing the administrative authorization processes of CERCLA, as described in the Tri-Party Agreement. Separate formal exemption requests are not part of the CERCLA process and will not be pursued.

III.G. DOE ORDER 5480.8A - CONTRACTOR OCCUPATIONAL MEDICAL PROGRAM

DOE Order 5480.8A requires establishment of an occupational medical program. The Order is met by implementing the ER Project occupational medical program, and by taking the following project specific actions: medical planning elements of the site specific emergency plan, and determinations of the level of medical monitoring appropriate for a specific project are identified and addressed in the RDR documents for individual response actions.

III.H. DOE ORDER 5480.9A - CONSTRUCTION PROJECT SAFETY AND HEALTH MANAGEMENT

DOE Order 5480.9A requires establishment of a safety and health program, development of project safety and health plans, performance of hazard analyses, safety and health training and regular inspections of construction sites, which are the requirements found in 29 CFR 1910.120. The requirements of the Order are met by complying with the provisions of 29 CFR 1910.120 as identified in the EE/CA, and identification and implementation of the specific requirements for performance of activity hazard analyses, development of project specific health and safety plans, training and inspections in the RDR documents.

III.I. DOE ORDER 5480.10 - CONTRACTOR INDUSTRIAL HYGIENE PROGRAM

DOE Order 5480.10 requires establishment of an industrial hygiene program to preserve employee health and well-being. The Order is met by implementing the ER Project industrial hygiene program, and by taking the following project specific actions: worker hazards for specific projects are identified and evaluated in the EE/CA and/or the RDR documents, and control measures are identified and implemented under the RDR documents for the individual response actions.

III.J. DOE ORDER 5480.11 - RADIATION PROTECTION FOR OCCUPATIONAL WORKERS

DOE Order 5480.11 provides standards for protecting occupational workers from exposure to radiation that have been codified in 10 CFR 835. The requirements of the Order are met by identification of 10 CFR 835 as an ARAR in the EE/CA, and identification and implementation of the specific requirements for occupational radiation protection and development of project specific radiation control plans in the RDR documents.

III.K. DOE ORDER 5480.19 - CONDUCT OF OPERATIONS REQUIREMENTS FOR DOE FACILITIES

DOE Order 5480.19 requires the use of directives, plans, and procedures for the conduct of operations at DOE facilities to assure the operations are safely and cost-effectively managed and maintained. The Order provides broad guidelines for processes to control a wide range of potential activities that may occur at DOE facilities. Many of the specific requirements will not be relevant or appropriate for the majority of ER Project work. The Order is met as follows: the programmatic requirements are implemented in accordance with the Conduct of Operations Matrix submitted to RL by BHI dated January 15, 1996; and by identification of commitments in the RDR documents to address the following, as appropriate:

1) Operational procedures to establish responsibilities, to establish processes to assure that management, organization and conduct of operations will attain an acceptable level of safety, and to assure implementation of proper industrial safety, radiological protection and quality assurance practices.

2) Inspections, audits and independent verifications of equipment and facility conditions.

3) A work control system to identify, prioritize, plan, schedule, coordinate, track, and document activities.

4) Personnel protection practices to maintain personnel exposure as low as reasonably achievable to radiation, chemicals, or other personnel hazards.

5) Training by qualified trainers in accordance with training programs that specifically identify the items the trainees must accomplish. Methods to ensure that only trained and qualified personnel operate equipment.

6) Emergency communication system plans and requirements.

7) Reporting, investigating, and providing notifications of abnormal events so that impacts may be assessed.

8) Labeling, inventorying and controlling equipment and the status of operating systems on a regular basis. Appropriate use of lockout/tagout processes.

III.L. DOE ORDER 5480.26 - TRENDING AND ANALYSIS OF OPERATIONS INFORMATION USING PERFORMANCE INDICATORS

DOE Order 5480.26 requires assessment of facility performance indicators and other operations information for trends in improving or deteriorating conditions. The Order is met by the review and trending of performance indicators for ER Project work.

III.M. DOE ORDER 5483.1A - OCCUPATIONAL SAFETY AND HEALTH PROGRAM FOR DOE CONTRACTOR EMPLOYEES AT GOCO FACILITIES

DOE Order 5483.1A provides a list of occupational safety and health standards to be followed by DOE contractors and requires establishment of a program to implement the requirements of these standards. The relevant and appropriate standards adopted in the Order are met as follows: the identified standards (29 CFR 1910, 29 CFR 1926) are incorporated into the CERCLA process by identification in the EE/CA or RI/FS, and project-specific health and safety requirements are developed and implemented in the RDR documents.

III.N. DOE ORDER 5484.1 - ENVIRONMENTAL PROTECTION, SAFETY AND HEALTH PROTECTION INFORMATION REPORTING REQUIREMENTS

DOE Order 5484.1 establishes a process for investigating and reporting occurrences at DOE facilities. The Order is met by investigating and reporting occurrences for ER Project work.

III.O. DOE ORDERS 5500.1B, 5500.2B, 5500.3A and 5500.10 - EMERGENCY PLANNING AND MANAGEMENT

DOE Order 5500.3A requires establishment of emergency management plans and procedures, hazard assessments, and coordination with offsite interfaces. The emergency management plans must include provisions for notification of emergency information to DOE and the public, assessment of consequences and timely implementation of protective actions, medical support, recovery and reentry into the affected facility, and emergency response equipment and training, including drills. Hazard assessments must evaluate the hazards relevant to operational emergencies and the potential consequences to workers, the public and the environment. DOE Order 5500.10 requires development of an annual emergency readiness assurance plan for each DOE facility, and readiness assurance assessments of emergency management programs.

DOE Order 5500.1B requires emergencies to be managed as follows: the event is identified and categorized as to severity, DOE and other federal, state, and local authorities are informed of the event and the response actions, immediate mitigative and corrective actions are taken to minimize consequences, such actions continue until the emergency is resolved, the root cause of the emergency is evaluated, and corrective actions are implemented. DOE Order 5500.2B provides additional detail regarding appropriate notification process and content.

The requirements of these Orders are met by implementation of the ERC emergency planning and preparedness programs, and at the project level by development of project-specific emergency management plans and procedures in the RDR documents. Any emergencies that occur will be managed in accordance with the programmatic requirements and the project specific emergency management plans. Notifications will be made pursuant to these plans consistent with the DOE Order notification requirements.

III.P. DOE ORDER 5632.1C - PROTECTION AND CONTROL OF SAFEGUARDS AND SECURITY INTERESTS

DOE Order 5632.1C requires establishment of a program for the protection and control of safeguards and security interests such as special nuclear material, vital equipment, classified matter, property, facilities, and unclassified irradiated reactor fuel in transit. The Order is met by implementation of the ER Project safeguards and security program.

III.Q. DOE ORDER 5700.6C - QUALITY ASSURANCE

DOE Order 5700.6C requires establishment of a quality assurance program that includes specification of management responsibilities for assuring program implementation, and for assessing and improving performance; appropriate training and qualification of personnel; performance of work, design, procurement, equipment maintenance, monitoring equipment calibration, and acceptance inspection and testing to established standards; procedural and administrative control of work processes; documentation of processes, requirements and designs; appropriate maintenance of records; and independent reviews to assess and improve program performance. The Order is met by implementation of the approved ERC Quality Program, the ERC Quality Management Plan, and Quality Program Procedures, as documented in BHI-QA-01 and BHI-QA-02.

IV. ORDERS THAT MAY BE IDENTIFIED IN ARARS ANALYSES

The following sections provide individual analyses of the DOE Orders that have been determined to contain requirements that are potentially relevant and appropriate to individual Hanford ER Project response actions. The analysis in these sections will serve as the basis for conclusions in project-specific ARARS analyses regarding the relevance or appropriateness of requirements in these Orders to individual projects or response action alternatives.

IV.A. DOE ORDER 4330.4B - MAINTENANCE MANAGEMENT PROGRAM

DOE Order 4330.4B, Maintenance Management Program, requires that DOE property be appropriately and cost-effectively managed and maintained. The Order requires establishment and implementation of a maintenance program appropriate for the facility or activity under consideration, and for structures, systems, and components (SSCs) important to safe operation or programmatic mission. The Order is met by identification of commitments in the RDR documents to address the following, as appropriate:

1) Definition of organization, administration, departmental interface, training, and procedural requirements.

2) Periodic inspections and evaluations of equipment and facility conditions.

3) Use of a work control system to identify, prioritize, plan, schedule, coordinate, track, and document maintenance activities.

4) Use of procedures to ensure maintenance is performed safely and efficiently.

5) Performance of post-maintenance testing or inspections to verify the ability of SSC to fulfill their design function when returned to service.

6) Retention of maintenance history and vendor information.

7) Control and calibration of Measurement and Test Equipment (MTE).

8) Control of procurement, inspection, storage and issuance of maintenance tools and equipment.

9) Maintenance of an adequate inventory of spare parts.

10) Use of preventive, predictive, and corrective maintenance to maintain a high degree of confidence that equipment will function as necessary.

11) Analysis of maintenance problems to prevent recurrence of the problem.

12) Seasonal program requirements such as freeze protection.

IV.B. DOE ORDER 5400.5 - RADIATION PROTECTION OF THE PUBLIC AND THE ENVIRONMENT

DOE Order 5400.5, Radiation Protection of the Public and the Environment, provides standards for dose limits, discharge limits, and property and equipment unrestricted release criteria. Some of these standards are either citations to or repetitions of limits found in promulgated regulations, and therefore, are addressed by other ARARs, including: public dose limits from routine operations (Chapter 2, Section 1a) and from waste management and

storage (Chapter 2, Section 1c), including ALARA requirements (Chapter 2, Section 2), are the same as the limits prescribed in 10 CFR 61 and 40 CFR 191; drinking water protection limits (Chapter 2, Section 1d) are the same as the limits prescribed in 40 CFR 141; and air emission limits (Chapter 2, Section 1b) are the same as the limits prescribed under the Clean Air Act in 40 CFR 61. These requirements are met for ER Project work by identification and implementation of the underlying ARAR.

The remaining substantive requirements of the Order are met as follows: the RI/FS or EE/CA evaluates the ability of alternatives to meet these standards, as appropriate, and the RDR documents specify the actions and systems necessary to meet the standards. The following is a summary of these standards:

Native Aquatic Animal Organisms: an absorbed dose of 1 rad per day from exposure to the radioactive material in liquid wastes discharged to natural waterways.

The average level of gamma radiation inside a building or habitable structure on a site to be released intact without restrictions on future use shall not exceed the background level by more than 20 microR per hour, and shall comply with the basic dose limit when an "appropriate-use" scenario is considered.

Discharges of Liquid Waste to Surface Waters shall meet best available technology (BAT) if the surface waters otherwise would contain, at the point of discharge and prior to dilution, radioactive material at annual average concentrations greater than the DCG values in liquids given in Chapter III. For liquid radioactive wastes where radionuclides are already at a low level, the ALARA principles are applicable.

Sedimentation: To prevent the buildup of radionuclide concentrations in sediments, liquid waste streams released to natural waterways shall not contain radioactive settleable solids at concentrations exceeding 5 pCi (0.2 Bq) per gram above background level, for alpha-emitting radionuclides or 50 pCi (2 Bq) per gram above background level, for beta-gamma-emitting radionuclides.

Discharges of liquid waste to soil columns (i.e., via trenches, cribs, ponds, and drain fields) to retain, by sorption or ion exchange, suspended or dissolved radionuclides from liquid waste streams shall be discontinued. Uncontaminated liquid discharges are prohibited in inactive release areas to prevent the further spread of radionuclides previously deposited.

Discharges of liquid waste to sanitary sewerage shall meet BAT if the wastes contain radionuclides at monthly average concentrations greater than five times the DCG values for liquids given in Chapter III at the point of discharge. Concentrations shall be controlled so that long-term buildup of radionuclides in solids will not present a handling and disposal problem at sewage disposal plants.

Potentially contaminated material, equipment, and personal property may be released for unrestricted use if a survey with appropriate techniques and instruments indicates that the property is not contaminated at levels exceeding the limits presented in Figure IV-1 to the Order. Where potentially contaminated surfaces are not accessible for measurement (as in some pipes, drains, and ductwork), a case-by-case evaluation of both the history of its use and available measurements shall demonstrate that the unsurveyable surfaces are likely to be within the limits given in Figure IV-1.

Real property cleanup is conducted to meet the standards specified in the applicable CERCLA decision document (Action Memorandum or Record of Decision [ROD]). At the Hanford site, the existing ROD for real property cleanup specifies a standard of 15 mrem above background based on the draft standards developed by EPA and the Nuclear Regulatory Commission (NRC). This is consistent with the provisions regarding authorized limits for radiological release of real property and structures in Chapter IV of the Order. These Order requirements therefore are met by implementation of the cleanup standard of 15 mrem specified in the ROD approved by DOE, EPA, and Ecology.

IV.C. DOE ORDER 5440.1E - NATIONAL ENVIRONMENTAL POLICY ACT COMPLIANCE PROGRAM

DOE Order 5440.1E, NEPA Compliance, provides that consideration shall be given to environmental values and factors in the decisionmaking process by incorporation of NEPA requirements early in the planning process for proposed actions. The Order is met by taking the following actions for any proposed activity that may affect the environment:

1) an assessment of NEPA values is incorporated into the evaluation of alternatives in the RI/FS or EE/CA,

2) a 45 day public comment period is provided, with a response provided to any comments received, and

3) a plan is provided as part of or in conjunction with the RDR documents, as appropriate, to identify the measures necessary to implement any mitigation commitments made in the ROD or Action Memorandum. All work is conducted in accordance with the measures identified in the RDR documents.

IV.D DOE ORDER 5480.3 - SAFETY REQUIREMENTS FOR THE PACKAGING AND TRANSPORTATION OF HAZARDOUS MATERIALS, HAZARDOUS SUBSTANCES, AND HAZARDOUS WASTES; DOE ORDER 1540.2 - HAZARDOUS MATERIAL PACKAGING FOR TRANSPORT - ADMINISTRATIVE PROCEDURES

DOE Order 5840.3 requires compliance with applicable safety regulations of the Department of Transportation (DOT), and applicable packaging standards of the NRC (10 CFR 71) for shipment by carrier of hazardous materials, hazardous substances, or hazardous wastes. DOE Order 5840.3 also provides special packaging standards and requirements for plutonium and plutonium bearing wastes and fissile material, and requirements for radioactive materials in

amounts greater than Type A quantities, if shipped in non-DOT specification containers. Most of the requirements of DOE Order 5840.3 pertain only if hazardous materials, hazardous substances, or hazardous waste are to be transported in containers that do not meet DOT requirements. DOE Order 1540.2 describes the processes to be followed for use of non-DOT containers.

DOE Order 5480.3 requires the following operating procedures: 1) assumptions of maximum nuclear reactivity for packaging of fissile material if the physical and chemical properties are unknown, 2) physical inspection and testing for the first use of a greater than Type A quantity package, 3) routine determinations of the packaging and primary coolant condition, and 4) marking packages with a model number. For fissile radioactive materials, or shipments of more than Type A quantity of radioactive material, the Order requires notification to the consignee of the dates of shipment and arrival and notification back to the shipper if the shipment has not been received, with follow up by the shipper if timely return receipt is not provided.

The requirements of these Orders are met as follows: in general, waste shipments are placed in DOT-compliant containers, as applicable. For any shipment of plutonium or fissile materials, or any shipment of more than Type A radioactive materials in a non-DOT container, the additional requirements of DOE Orders 5480.3 and 1540.2 are met. Project-specific waste shipment requirements, including operating procedures, notification and tracking processes, and any packaging and transportation requirements in addition to or in lieu of the DOT requirements, are specified in the RDR documents.

IV.E. DOE ORDER 5480.7A - FIRE PROTECTION

DOE Order 5480.7A, Fire Protection, requires actions to minimize the potential for occurrence of fires, and resulting hazards to life safety of workers and the public; releases to the environment; or damage to necessary safety systems, vital DOE programs, or property. These actions include: 1) analyses of fire hazards; 2) assessments of fire protection adequacy; 3) design and construction of facilities in accordance with appropriate fire code requirements; 4) provision of fire protection systems; 5) use and storage of combustible, flammable, radioactive and hazardous materials in a manner so as to minimize the risk from fire; and 6) emergency planning. These requirements are met by taking the following actions for any activity that may involve a potential fire hazard:

1) an evaluation of fire hazard potential is incorporated into the RI/FS or EE/CA, on a graded approach, based on the type of facility and activity, and

2) the RDR documents identify the measures necessary to maintain the risk of fire hazards at an acceptably low level, including, as appropriate, design and construction requirements, fire inspections or assessments, fire protection systems, safe methods to manage combustible, flammable, radioactive and hazardous materials, and emergency planning requirements.

All work is conducted in accordance with the fire safety measures identified in the RDR documents. If, in performance of work, conditions are at variance with the assumptions of the analysis in the RI/FS, EE/CA or RDR documents, additional analysis is performed. Periodic surveillances of sites being addressed by the Hanford ER Project are conducted as specified in the RDR documents to prevent development of fire hazards. Corrective measures will be taken if unsafe conditions are detected.

IV.F. DOE ORDER 5480.20.A - PERSONNEL SELECTION, QUALIFICATION, AND TRAINING REQUIREMENTS FOR DOE NUCLEAR FACILITIES

DOE Order 5480.20A requires that personnel involved in the operation, maintenance, and technical support of DOE facilities be appropriately selected, trained and qualified. The requirements of the Order are both programmatic and project-specific. The programmatic training requirements are met by implementation of the ER Project training program to ensure that all personnel are qualified to safely and effectively meet job requirements. For individual response actions, project-specific qualifications and training requirements are identified and implemented by the RDR documents based on an analysis of the jobs to be performed and the qualifications and training necessary to safely and effectively perform those jobs.

IV.G. DOE ORDER 5480.21 - UNREVIEWED SAFETY QUESTION REQUIREMENTS

DOE Order 5480.2, Unreviewed Safety Questions (USQ), requires that any change, discovery or inadequacy of evaluation (collectively, "change") which could affect the approved authorization basis be evaluated to determine whether safety could be affected. These requirements are implemented at both programmatic and project specific levels. The programmatic requirements are met by establishment of a USQ review process.

The project specific requirements are met by identification in the RDR documents of those authorization basis components for an individual response action that will be subject to the USQ review process. Changes that do not affect the approved authorization basis are managed by means of work change control processes in accordance with appropriate requirements such as OSHA. If the change impacts the authorization basis, a safety evaluation is performed. Routine activities and changes do not require safety evaluations unless those activities were not enveloped by the authorization basis identified in the RDR documents. A safety evaluation determines whether the change would result in any of the following conditions: an increase in the likelihood of occurrence or the consequences of an accident or malfunction of safety equipment previously evaluated in the safety analyses; creating the possibility for an accident or malfunction of a different type than any evaluated previously in the safety analyses; or reducing a required margin of safety. If any of these conditions would result, DOE is notified, the site is placed in a safe condition, and the change is not implemented until appropriate safety and mitigation measures have been identified and implemented by amendment and re-approval of the RDR documents.

CERCLA requires an evaluation of any proposed change to the response action to determine whether it is 1) a non-significant or minor change, 2) a significant change to a component of the remedy, or 3) a fundamental change to the overall remedy. The Tri-Party Agreement requires certain evaluations and approvals of proposed changes to work scope or schedules. For response actions implemented under the integrated CERCLA process, the change control requirements of CERCLA, the Tri-Party Agreement and DOE Order 5480.21 are met by implementation of a coordinated change control process.

IV.H. DOE ORDER 5480.22 - TECHNICAL SAFETY REQUIREMENTS

DOE Order 5480.22 requires definition of the conditions, safe boundaries and management and administrative controls necessary to ensure the safe operation of DOE nuclear facilities and to reduce the potential risk to the public and facility workers from uncontrolled releases of radioactive materials or from radiation exposures due to inadvertent criticality. These commitments, termed Technical Safety Requirements (TSRs), are developed on a project-specific basis to define the controls necessary to provide protection from the hazards identified in the project safety analysis. TSRs include Safety Limits, Operating Limits, surveillance requirements, and management or administrative requirements. These requirements are met as follows: in general, because ER operations utilize very few engineered safety systems, basic safety control of ER operations is provided through worker protection programs (including industrial hygiene and radiation protection oversight, e.g., monitoring of worker exposures, use of personal protective clothing and equipment (PPE) and emergency evacuation planning), and/or environmental protection programs. Control of the levels of hazardous materials to which workers may, at any time, be exposed is addressed in the safety and health program. A work-specific Health and Safety Plan (HASP) is developed for each response action as part of the RDR document process; DOE review and approval is accomplished through the RDR document approval process. Additional specific requirements or controls that may be deemed necessary to provide sufficient protection to workers or the public for an individual response action are defined in the RDR documents.

IV.I. DOE ORDER 5480.23 - NUCLEAR SAFETY ANALYSIS REPORTS

DOE Order 5480.23 requires performance of safety analyses for DOE nuclear facilities. The safety analysis must include identification and analysis of hazards, accident analysis, and identification of actions necessary to mitigate the identified hazards.

The substantive requirements in the Order for identification and analysis of hazards are met as follows: a preliminary discussion of hazards is included in the discussion provided in the RI/FS or EE/CA section that addresses "source, nature and extent of contamination". This section of the RI/FS (EE/CA) identifies the radioactive materials and chemical materials present at the site, determines which are the dominant contributors to risk, and describes potential exposure pathways. The final hazard evaluation is provided in the RDR documents.

The Order requirements for identification of actions to mitigate the identified hazards and to protect the public, workers, and the environment from the safety and health hazards posed by the proposed actions are discussed at a conceptual level in the RI/FS or EE/CA sections that address "short term effectiveness" of the action alternatives. Design specifications for mitigation measures are provided in the RDR documents.

In general, these analyses provide the majority of the safety analysis appropriate for ER Project work, meeting the Order's requirement to provide a level of analysis on a graded approach commensurate with: (a) the magnitude of the hazards being addressed; (b) the complexity of the facility and/or systems being relied on to maintain an acceptable level of risk; and (c) the stage or stages of the facility life cycle. For sites or activities that pose little hazard, or that pose hazards for which only a modest reduction of risk is required, the analysis will be simple and short.

In addition, the following requirements are incorporated as appropriate into the RI/FS (EE/CA) analysis of alternatives and RDR document design specifications:

1) specific evaluation of facility equipment and engineered systems that perform or support specific safety functions, such as shielding, confinement barriers and systems, effluent treatment systems, ventilation and offgas systems, monitoring and alarm systems, and nuclear criticality prevention systems;

2) analysis of credible accident conditions, which considers accidents that pose nonnegligible risks to the public, site workers, co-located workers, and the environment; and

3) analysis of measures necessary to provide appropriate defense in depth.

These analyses are used to demonstrate the effectiveness and appropriateness of the principal safety design criteria, determine whether new information or proposed changes in design or operation require additional analysis, and serve as a basis for evaluating the safety significance of operational events.

IV.J. DOE ORDER 5480.24 - NUCLEAR CRITICALITY SAFETY

DOE Order 5480.24, Nuclear Criticality Safety, requires that fissionable materials be managed in a manner which will reduce the risk of criticality incidents to acceptably low levels, and protect the public, workers, government property and essential operations from the effects of a criticality incident. The control parameters for nuclear criticality safety are met by taking the following actions for any activity that may involve storage, handling or transportation of fissionable materials:

1) an evaluation is incorporated into the RI/FS or EE/CA to determine whether there is a risk of a criticality incident.

2) the RI/FS, EE/CA or RDR documents, as appropriate, define any field verifications necessary to verify the assumptions of the analysis; and

3) the RDR documents identify any additional characterization that may be warranted (e.g., for transportation or disposal) and identify the measures necessary to reduce the risk of a criticality incident to an acceptably low level.

All work is conducted in accordance with the criticality safety measures identified in the RDR documents. If, in performance of work, conditions are at variance with the assumptions or exceed the limits of the analysis in the RI/FS, EE/CA or RDR documents, additional characterization and/or analysis is performed. Periodic surveillances of sites being addressed by the Hanford ER Project is conducted to prevent unsafe accumulations of fissionable materials. Corrective measures will be taken if unsafe accumulations are detected.

If criticality is credible under any condition, guidelines for use of fire fighting apparatus are addressed in the RDR documents. For those activities determined to have a criticality potential [based on mass, form, and distribution of fissile material], the substantive requirements in the American Nuclear Society's ANSI/ANS nuclear criticality safety standards will be addressed to the extent they are relevant and appropriate for the specific site and activity, by providing appropriate specifications in the RDR documents.

IV.K. DOE ORDER 5480.28-NATURAL PHENOMENA HAZARDS MITIGATION

DOE Order 5480.28 requires DOE facilities to be designed, constructed, and operated so that workers, the public and the environment are protected from the impacts of natural phenomena hazards (NPH). The Order establishes design and evaluation requirements for both new and existing facilities based on anticipated site specific NPH, hazard and accident analysis and facility specific considerations including occupancy, property loss, essential operations and confinement of hazardous substances. These requirements are met as follows:

The Order requires development of an Implementation Plan to provide for preparation of a site specific NPH assessment, evaluation of existing structures, systems and components (SSCs), and performance of corrective measures for deficient SSCs. The existing facilities in the Hanford ER Project are being addressed as part of the S&M evaluation being undertaken to meet the requirements of CERCLA and the Tri-Party Agreement. Any facility-specific NPH evaluations or mitigation actions for these existing facilities will be addressed within that documentation. A separate Implementation Plan will not be submitted.

The substantive provisions of the Order require an evaluation of SSCs to assure that NPH will not cause loss of structural integrity that would endanger life safety, pose a risk to the safety of workers and the public, impact the environment, impose unacceptable repair/replacement costs, or impact programmatic mission. New SSCs must be designed to withstand the effects of NPH. Existing SSCs must be evaluated if there has been a significant change in the function of the SSC. The evaluation must consider all potentially damaging NPH and their effects. The evaluation is to be performed on a graded approach based on the

occupancy of the building, the presence and potential for release of significant quantities of hazardous substances (including radionuclides) and any essential functions performed by or in the facility.

The major substantive elements of the evaluation are: 1) identification and characterization of site specific NPH; 2) definition of design basis load levels (design basis events/accidents or DBE); 3) identification of SSC necessary to provide occupant safety, continue essential operations and/or limit release of hazardous substances; 4) evaluation of the response of the SSCs to the DBE; and 5) identification of corrective/mitigative actions for those SSCs for which the response is determined to be unacceptable.

The identification and characterization of the Hanford site specific NPH, and definition of DBE are provided and maintained by DOE RL and its contractors. Identification and evaluation of SSC required to provide occupant safety, continue essential operations and limit releases of hazardous materials are identified for ER Project work in the RI/FS or EE/CA for each action. For the existing facilities, these are identified in the S&M Plan currently under development. Identification of corrective measures for SSCs of concern are identified in the RDR documents for each action.

IV.L. DOE ORDER 5480.31 - STARTUP AND RESTART OF NUCLEAR FACILITIES

DOE Order 5480.31, Startup and Restart of Nuclear Facilities, requires a review of readiness to ensure that it is safe to start or restart an activity. The readiness review verifies that 1) the planned activity reflects actual or expected conditions to be encountered, and 2) planned actions and controls are appropriately protective of the worker, the public, and the environment. These requirements are met as follows: the RDR documents specify the scope, content, and participants for the review to be conducted prior to commencing a response action selected under the DOE Integrated CERCLA process. The review verifies the adequacy of hardware, personnel, and management programs including analysis, procedures, training, facilities and equipment, and emergency plans. The rigor of the review is commensurate with the size of the action and the potential hazard involved. For large, complicated and/or hazardous actions, independent review will likely be relevant and appropriate.

IV.M. DOE ORDER 5820.2A, RADIOACTIVE WASTE MANAGEMENT

DOE Order 5820.2A contains requirements for management of 1) high level waste, 2) transuranic waste, 3) low-level waste, 4) naturally occurring and accelerator produced radioactive material, and 5) decommissioning of radioactively contaminated facilities.

Because the Hanford ER Project does not currently handle any high level waste, analysis of Chapter I of the Order is deferred at this time.

Chapter II addresses Transuranic (TRU) Waste, defined as the contents of any single package of radioactive wastes that contain more than 100 nCi/g of transuranic radionuclides at the time of assay. This chapter includes

requirements relating to 1) timely designation of the waste, 2) process controls to achieve waste minimization, 3) treatment of mixed TRU waste, where feasible and practical to destroy the classified characteristics; 4) packaging; and 5) interim storage. The requirements pertaining to interim storage facilities are not addressed here because the ER Project does not manage any such facilities. The Order provides that TRU waste shall be sent to the Waste Isolation Pilot Plant (WIPP) unless DOE and EPA determine that it does not need the degree of isolation provided by a geologic repository, or it cannot be certified or otherwise approved for acceptance at WIPP. These requirements of the Order are met as follows: for any action that may involve TRU waste, an evaluation is made in the EE/CA regarding the necessary degree of isolation and whether the waste can meet the WIPP acceptance criteria. The RDR documents specify requirements for management of the TRU waste, including as appropriate, designation, control, treatment, packaging, and placement in interim storage or disposal. For sites with buried transuranic contaminated waste, the requirements of Chapter 2(3)(I) are met by the evaluation of alternatives in the EE/CA or RI/FS and selection of an appropriate site-specific alternative in the Action Memorandum or ROD.

Chapter III addresses Management of Low-level Waste. The following paragraphs discuss the requirements that may be relevant and appropriate for ER Project activities or sites that involve generation, management or disposal of low-level waste and describe the means by which these requirements are addressed by CERCLA processes and/or by other ARARs that have been identified for ER Project work. The elements are as follows:

> Performance Objectives (Section 3.a): The performance objectives require DOE low-level waste to be managed so as to i) protect public health and safety; ii) prevent external exposure or releases that result in a public EDE of 25 mrem per year, and make reasonable effort to maintain radioactivity in effluents to the environment ALARA; iii) assure that inadvertent intruders will not receive continuous exposure of 100 mrem per year or acute exposure of 500 mrem after cessation of active institutional control; and iv) protect groundwater consistent with Federal, State, and local requirements. Under CERCLA, a threshold criteria for selection of any remedy requires that it be protective of human health and the environment; therefore the analysis of alternatives under the CERCLA selection criteria fulfills the first performance objective. The second and third performance objectives are met by compliance with the identical requirements found in the performance objectives in 10 CFR 61, which are identified as ARARs for response actions addressing low level radioactive waste on the Hanford site. In addition, human risk from exposure to contaminants is analyzed in the RI/FS or EE/CA evaluation for each response action. The fourth performance objective is met by compliance with the Federal and state requirements for protection of groundwater; these requirements are identified as ARARs for all response actions on the Hanford site. Modeling is used to demonstrate that response actions will be protective of groundwater consistent with the standards found in the Federal Safe Water Drinking Act and the Washington State Model Toxics Control Act.

Performance Assessment (Section 3b): The Order specifies that performance of individual sites shall be assessed to demonstrate compliance with the performance objectives in Section 3a. This requirement is met by the analysis of alternatives against the CERCLA selection criteria, assessment of risk, and evaluation of ARAR compliance, all of which are provided in the RI/FS or EE/CA for each response action, as described above in the discussion on Section 3a.

Waste Generation (Section 3c): The Order provides that efforts shall be taken to accomplish waste minimization, and that uncontaminated waste shall be separated from low-level waste to facilitate cost effective treatment and disposal. These requirements are met by evaluations of waste minimization and segregation opportunities included as part of the alternatives considered for CERCLA response actions.

Waste Characterization (Section 3d): The Order requires characterization of low-level waste, either by direct or indirect methods, with sufficient accuracy to permit proper segregation, treatment, storage, and disposal, and recording of the waste characteristics on a waste manifest. The characterization requirement is met through implementation of the CERCLA requirement to characterize the nature and extent of contamination to be addressed by an ER Project response action. For the Hanford ER Project, only limited characterization is possible prior to selection of a response action; additional characterization is performed in accordance with the specifications provided in Remedial Design Report (RDR) documents based on site specific analyses in the EE/CA or RI/FS, and the observational approach developed under the Tri-Party Agreement. The degree of characterization and documentation is determined by the terms of the response action decision document (ROD or Action Memorandum) and/or the RDR documents submitted by DOE to the regulatory agencies.

Waste Acceptance Criteria (Section 3e): The Order requires that low-level waste treatment, storage or disposal facilities develop criteria for acceptance of waste that address specified parameters, including quantities and concentration of radionuclides, criticality safety requirements, security restrictions, external radiation and internal heat generation, generation of harmful gases, vapors or liquids, chemical and structural stability, radiation effects, microbial activity, chemical reactions and moisture, chelating and complexing agents, and free liquids. These requirements are met by addressing these parameters in the waste acceptance criteria developed as part of the RDR document process.

Waste Treatment (Section 3f): The Order requires that waste be treated as appropriate so that the disposal site meets the performance objectives, and to increase the life of the facility or improve facility performance, to the extent it is cost effective; and that waste treatment facilities be supported by appropriately document analyses, plans and procedures. These requirements are met for ER Project response actions as follows: a determination of necessary and appropriate treatment requirements is provided in the RDR documents for

the source waste site, based on an analysis of the disposal site waste acceptance criteria. Analyses required for any treatment facility will be provided in the EE/CA or RI/FS for the treatment facility. Plans and procedures for operation of a treatment facility would be developed as part of the RDR document process.

Shipment (Section 3g): The Order contains requirements regarding management of waste shipments. The requirements applicable to off-site waste shipments are not addressed because the Hanford ER Project does not ship low-level waste off-site. The requirements for labeling of packages, and documentation that the waste meets waste acceptance criteria are met by providing appropriate specifications regarding labeling and documentation in the RDR documents that form the basis for authorization of the waste shipments.

Long-Term Storage (Section 3h): The Order requires that low-level waste storage meet the performance objectives and be supported by appropriately document analyses, plans and procedures. These requirements are met as follows: analyses to determine that a proposal to store low-level waste meets the performance objective will be provided in the EE/CA or RI/FS that proposes such storage. Appropriate plans and procedures necessary to implement the storage will be provided as part of the RDR documents developed for the storage.

Disposal (Section 3i): The Order provides the following requirements: i) low-level waste shall be disposed of by methods that meet the performance objectives, ii) specific engineering requirements for waste types or compositions shall be determined by the performance assessment, iii) certain disposal criteria shall be met to improve stability of the disposal site or facilitate handling and provide protection of health and safety of personnel at the disposal site, iv) certain criteria shall be met for disposal site selection and facility design and v) operations shall be supported by appropriate plans and procedures. The first requirement is met as specified above in the discussion in section 3a. The second requirement is met by providing site specific engineering specifications in the RDR documents for each site, which are based on the performance assessment in the RI/FS or EE/CA. The third requirement is met by addressing the specified disposal requirements in the RDR documents developed for the disposal site. The fourth requirement is met by evaluation of the disposal site selection criteria in the evaluation of disposal sites in the RI/FS or EE/CA, and specification of general design criteria in the description of alternatives in the RI/FS or EE/CA and detailed design criteria in the RDR documents. The last requirement is met by specifying operational requirements in the RDR documents.

Disposal Site Closure/Post Closure(Section 3j): This section of the Order provides that disposal sites shall be closed in accordance with closure plans that will meet the performance objectives, existing DOE decommissioning guidelines, RCRA and CERCLA. This requirement will be met by implementation of closure requirements specified in the RDR documents for any disposal site closure, which will be required by

CERCLA to meet the requirements of RCRA, and as described above in the discussion of section 3a, will be required to meet the performance objectives. These requirements are at least as stringent and the DOE decommissioning guidelines, therefore, compliance with these requirements will meet the requirements of the decommissioning guidelines.

Environmental Monitoring (Section 3k): This section of the Order requires that disposal facilities to be monitored for releases, subsidence or other changes which may affect long-term site performance to allow application of corrective actions prior to exceedance of performance standards. This requirement is met by the CERCLA requirement for O&M of disposal sites and five-year review of sites where contaminants are left in place to assure continued protectiveness.

Quality Assurance (Section 3l): This section of the Order provides that disposal sites shall meet applicable QA requirements in national consensus standards. This requirement is met by implementing the ERC QA Program, and any additional QA requirements specified in the RDR documents for a disposal site.

Records and Reports (Section 3m): This section of the Order requires maintenance of an overall record of facility waste management activities, and specific records for individual waste streams to assure that waste has been managed in accordance with applicable requirements. These requirements are met by the CERCLA requirement to maintain an administrative record containing all information that forms the basis for the response action decision (which determines how waste will be managed), and by implementation of the criteria addressed above in the discussion in sections 3d, 3e and 3g.

Chapter IV addresses Naturally Occurring and Accelerator Produced Radioactive Material. This chapter does not appear relevant or appropriate to any currently anticipated ER Project work.

Chapter V addresses Decommissioning of Radioactively Contaminated Facilities. This chapter provides for S&M of facilities prior to decommissioning to meet applicable radiation protection, hazardous chemical and safety standards, to maintain physical safety and security, and to reduce potential public and environmental hazards. This requirement is met by implementation S&M under Section 8 of the Tri-Party Agreement.

IV.N. DOE ORDER 6430.1A - GENERAL DESIGN CRITERIA

DOE Order 6430.1A requires that certain design criteria be met for DOE facilities. In general, ER Project work does not include design or construction of facilities. However, it may include some activities for which design criteria would be relevant, including demolition of existing structures; design of new facilities or modification of existing facilities to support D&D or remediation; or design of engineered features, equipment or tools to support D&D or remediation. The Order is met by documenting compliance with applicable Order requirements in the RDR documents, or by documenting DOE approval in the RDR documents of a deviation from a requirement.

For demolition activities, the RDR documents include plans to ensure remaining buildings, trees, and environmental resources are protected, and to define the extent of demolition, abandonment, and removal of existing facilities and utilities; the methods for handling and disposal of hazardous wastes; materials to be salvaged; backfilling of removed materials; and cleanup.

For new facilities or modifications to existing facilities, the design in the RDR documents is developed using professional architectural and engineering principles and practices to satisfy applicable federal laws and regulations, provides for facilities designed and constructed to be reasonable and adequate for their intended purpose and consistent with health, safety, security, and environmental protection requirements, and factors periodic decontamination and ultimate decommissioning activities into design. The RDR document design of any engineered features, equipment, or tools (e.g. pump and treat facilities, shoring or underpinning, temporary confinement or air handling systems) required to support D&D or remediation activities will meet applicable requirements in the Order, unless a deviation is approved in the RDR documents.